

MA 261 QUIZ 1

JANUARY 15, 2019

If you do not know how to do any one of these problems, circle “**(E) I don’t know**” as your answer choice. You will receive **two points** for doing that. **Each problem** is worth **five points**. You get **two points** for writing your **full name** and **three points** for writing your **section number**.

Problem 1.1. Find a pair of unit vectors \mathbf{u}_1 and \mathbf{u}_2 which make a 60° angle with $\mathbf{v} = \langle \sqrt{3}, 1 \rangle$.

- (A) $\mathbf{u}_1 = \langle 1, 0 \rangle, \mathbf{u}_2 = \langle -\sqrt{3}, -1 \rangle$.
- (B) $\mathbf{u}_1 = \langle \frac{\sqrt{2}}{2}, \frac{\sqrt{2}}{2} \rangle, \mathbf{u}_2 = \langle \frac{\sqrt{2}}{2}, -\frac{\sqrt{2}}{2} \rangle$.
- (C) $\mathbf{u}_1 = \langle 1, 0 \rangle, \mathbf{u}_2 = \langle \sqrt{3}, -1 \rangle$.
- (D) $\mathbf{u}_1 = \langle 0, 1 \rangle, \mathbf{u}_2 = \langle \frac{\sqrt{3}}{2}, -\frac{1}{2} \rangle$.
- (E) I don’t know.

Problem 1.2. Find the area of the triangle with vertices at $(2, 1, 1)$, $(1, 2, 1)$, and $(1, 1, 2)$.

- (A) $7/2$.
- (B) $3/2$.
- (C) $\sqrt{2}$.
- (D) $\sqrt{3}/2$.
- (E) I don’t know.

Problem 1.3. Find parameterization for the line passing through the points $(1, -2, 1)$ and $(2, 3, -1)$.

- (A) $\mathbf{r}(t) = \langle t + 2, 5t + 3, 2t - 1 \rangle$
- (B) $\mathbf{r}(t) = \langle t + 1, 5t - 2, -2t + 1 \rangle$
- (C) $\mathbf{r}(t) = \langle t, 5t, -2t \rangle$
- (D) $\mathbf{r}(t) = \langle t + 1, -5t - 2, -2t \rangle$
- (E) I don’t know.

Hint: The parameterization is not unique, but there is only one correct answer choice.